Amendments to Claims

This listing of Claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1. (previously presented) An isolated nucleic acid encoding a polypeptide with isoflavone synthase activity having the amino acid sequence set forth in SEQ ID NO:66.

Claim 2-10 (canceled).

Claim 11. (previously presented) A chimeric polynucleotide comprising the nucleic acid of Claim 1 operably linked to at least one regulatory sequence.

Claim 12. (previously presented) A transformed host cell comprising the chimeric polynucleotide of Claim 11.

Claim 13. (previously presented) The transformed host cell of Claim 12 further comprising a second chimeric polynucleotide comprising a nucleic acid encoding a polypeptide that regulates expression of at least one enzyme of the phenylpropanoid pathway.

Claim 14. (previously presented) The transformed host cell of Claim 13 wherein the second chimeric polynucleotide encodes a polypeptide comprising the maize C1 DNA binding domain, the maize transcription factor R, and the maize C1 activation domain.

Claim 15. (original) The transformed host cell of Claim 12 wherein the host cell is a eukaryotic cell.

Claim 16. (currently amended) The eukaryotic cell of Claim 15[[13]] wherein the cell is a yeast cell.

Claim 17. (original) The eukaryotic cell of Claim 15 wherein the cell is a plant cell.

Claim 18. (original) The plant cell of Claim 17 wherein the cell is a soybean cell.

Claim 19. (original) The plant cell of Claim 17 wherein the cell is a corn cell.

Claims 20-25. (canceled).

Claim 26. (previously presented) A method of altering the level of expression of isoflavone synthase in a host cell comprising:

(a) transforming a host cell with the chimeric polynucleotide of Claim 11 or transforming the host cell with the chimeric polynucleotide of Claim 11 and with a

second chimeric polynucleotide comprising a nucleic acid sequence encoding a polypeptide that regulates expression of at least one enzyme of the phenylpropanoid pathway; and

(bc) growing the transformed host cell produced in step (a) under conditions that are suitable for expression of the chimeric polynucleotide

wherein expression of the chimeric polynucleotide results in production of altered levels of isoflavone synthase in the transformed host cell.

Claims 27 and 28 (canceled).

Claim 29. (previously presented) The method of Claim 26 wherein the host cell is a eukaryotic cell.

Claim 30. (currently amended) The method of Claim 29[[26]] wherein the eukaryotic cell is a yeast cell.

Claim 31. (currently amended) The method of Claim 29[[26]] wherein the eukaryotic cell is a plant cell.

Claim 32. (original) The method of Claim 31 wherein the plant cell is a soybean cell.

Claim 33. (original) The method of Claim 31 wherein the plant cell is a corn cell.

Claims 34-50 (canceled).

Claim 51. (currently amended) The isolated nucleic acid of Claim 1 where

Xaa_{10} is Phe
Xaa_{16} is Leu
Xaa_{23} is Ser
Xaa_{25} is Lys
Xaa_{39} is Lys
Xaa_{48} is Leu
Xaa_{60} is Leu
Xaa_{73} is Leu
Xaa_{74} is Ser
Xaa_{95} is Thr
Xaa_{96} is His
Xaa_{102} is Asn
Xaa_{110} is Ile
Xaa_{112} is Arg
Xaa_{117} is Asn

Xaa_{118} is Ser
Xaa_{121} is Met
Xaa_{122} is Val
Xaa_{124} is Phe
Xaa_{129} is Lys
Xaa_{147} is Lys
Xaa_{159} is Phe
Xaa_{162} is Val
Xaa_{166} is Ser
Xaa_{170} is Gln
Xaa_{175} is Val
Xaa_{183} is Thr
Xaa_{187} is Ile
Xaa_{191} is Met
Xaa_{209} is Phe
Xaa_{219} is Trp
Xaa_{223} is Tyr
Xaa_{253} is Glu
Xaa_{259} is Lys
Xaa_{263} is Val
Xaa_{264} is Val
Xaa_{268} is Ala
Xaa_{272} is Phe
Xaa_{285} is Met
~~Xaa_{292} is Glu~~
~~Xaa_{293} is Gln~~
Xaa_{294} is Ile
Xaa_{301} is Phe
Xaa_{306} is Thr
Xaa_{311} is Val
Xaa_{312} is Ala
Xaa_{325} is Arg
Xaa_{328} is Gln

Xaa_{334} is Val
Xaa_{342} is Arg
Xaa_{377} is Thr
Xaa_{381} is Glu
Xaa_{385} is Tyr
Xaa_{387} is Ile
Xaa_{393} is Val
Xaa_{394} is Leu
Xaa_{402} is Arg
Xaa_{404} is Pro
Xaa_{413} is Phe
Xaa_{422} is Gly
Xaa_{428} is Gly
Xaa_{429} is Pro
Xaa_{435} is Gln
Xaa_{447} is Arg
Xaa_{453} is Asn
Xaa_{459} is Met, and
Xaa_{485} is Asp.

Claim 52. (currently amended) The isolated nucleic acid of Claim 1 where

~~Xaa_{10} is Phe or Leu~~
Xaa_{16} is Leu
Xaa_{23} is Ser
Xaa_{25} is Lys
Xaa_{39} is Lys
Xaa_{48} is Leu
Xaa_{60} is Leu
Xaa_{73} is Leu
Xaa_{74} is Ser
Xaa_{95} is Thr
Xaa_{96} is His
Xaa_{102} is Asn
Xaa_{110} is Thr

Xaa_{112} is Arg
Xaa_{117} is Asn
Xaa_{118} is Ser
Xaa_{121} is Met
Xaa_{122} is Val
Xaa_{124} is Phe
Xaa_{129} is Arg
Xaa_{147} is Lys
Xaa_{159} is Phe
Xaa_{162} is Val
Xaa_{166} is Ser
Xaa_{170} is Gln
Xaa_{175} is Val
Xaa_{183} is Thr
Xaa_{187} is Ile
Xaa_{191} is Met
Xaa_{209} is Phe
Xaa_{219} is Trp
Xaa_{223} is Tyr
Xaa_{253} is Gly
Xaa_{259} is Glu
Xaa_{263} is Val
Xaa_{264} is Val
Xaa_{268} is Ala
Xaa_{272} is Phe
Xaa_{285} is Met
~~Xaa_{292} is Glu~~
~~Xaa_{293} is Gln~~
Xaa_{294} is Ile
Xaa_{301} is Leu
Xaa_{306} is Thr
Xaa_{311} is Val
Xaa_{312} is Ala

Xaa_{325} is Arg
Xaa_{328} is Gln
Xaa_{334} is Val
Xaa_{342} is Arg
Xaa_{377} is Thr
Xaa_{381} is Glu
Xaa_{385} is Tyr
Xaa_{387} is Ile
Xaa_{393} is Val
Xaa_{394} is Leu
Xaa_{402} is Arg
Xaa_{404} is Pro
Xaa_{413} is Phe
Xaa_{422} is Gly
Xaa_{428} is Gly
Xaa_{429} is Pro
Xaa_{435} is Gln
Xaa_{447} is Arg
Xaa_{453} is Asn
Xaa_{459} is Met, and
Xaa_{485} is Asp.

Claim 53. (currently amended) The isolated nucleic acid of Claim 1 where

~~Xaa_{10} is Phe or Leu~~
Xaa_{16} is Leu
Xaa_{23} is Thr
Xaa_{25} is Lys
Xaa_{39} is Lys
Xaa_{48} is Leu
Xaa_{60} is Leu
Xaa_{73} is Leu
Xaa_{74} is Tyr
Xaa_{95} is Thr
Xaa_{96} is His

Xaa_{102} is Asn
Xaa_{110} is Ile
Xaa_{112} is Arg
Xaa_{117} is Ser
Xaa_{118} is Leu
Xaa_{121} is Met
Xaa_{122} is Val
Xaa_{124} is Phe
Xaa_{129} is Lys
Xaa_{147} is Lys
Xaa_{159} is Phe
Xaa_{162} is Val
Xaa_{166} is Gly
Xaa_{170} is Gln
Xaa_{175} is Leu
Xaa_{183} is Thr
Xaa_{187} is Ile
Xaa_{191} is Met
Xaa_{209} is Tyr
Xaa_{219} is Trp
Xaa_{223} is His
Xaa_{253} is Glu
Xaa_{259} is Lys
Xaa_{263} is Val
Xaa_{264} is Val
Xaa_{268} is Val
Xaa_{272} is Phe
Xaa_{285} is Thr
~~Xaa_{292} is Asp~~
~~Xaa_{293} is His~~
Xaa_{294} is Ile
Xaa_{301} is Phe
Xaa_{306} is Ile

Xaa_{311} is Val
Xaa_{312} is Ala
Xaa_{325} is Lys
Xaa_{328} is Glu
Xaa_{334} is Val
Xaa_{342} is Arg
Xaa_{377} is Thr
Xaa_{381} is Glu
Xaa_{385} is Tyr
Xaa_{387} is Ile
Xaa_{393} is Ile
Xaa_{394} is Leu
Xaa_{402} is Arg
Xaa_{404} is Pro
Xaa_{413} is Phe
Xaa_{422} is Gly
Xaa_{428} is Arg
Xaa_{429} is Pro
Xaa_{435} is Gln
Xaa_{447} is Gly
Xaa_{453} is Asn
Xaa_{459} is Met, and
Xaa_{485} is Gly.

Claim 54. (currently amended) The isolated nucleic acid of Claim 1 where

~~Xaa_{10} is Phe or Leu~~
Xaa_{16} is Leu
Xaa_{23} is Thr
Xaa_{25} is Lys
Xaa_{39} is Lys
Xaa_{48} is Pro
Xaa_{60} is Leu
Xaa_{73} is Leu
Xaa_{74} is Tyr

Xaa_{95} is Thr

Xaa_{96} is His

Xaa_{102} is Asn

Xaa_{110} is Ile

Xaa_{112} is Arg

Xaa_{117} is Ser

Xaa_{118} is Ser

Xaa_{121} is Met

Xaa_{122} is Val

Xaa_{124} is Phe

Xaa_{129} is Lys

Xaa_{147} is Lys

Xaa_{159} is Phe

Xaa_{162} is Val

Xaa_{166} is Ser

Xaa_{170} is Gln

Xaa_{175} is Val

Xaa_{183} is Thr

Xaa_{187} is Ile

Xaa_{191} is Met

Xaa_{209} is Phe

Xaa_{219} is Trp

Xaa_{223} is Tyr

Xaa_{253} is Glu

Xaa_{259} is Lys

Xaa_{263} is Val

Xaa_{264} is Val

Xaa_{268} is Ala

Xaa_{272} is Phe

Xaa_{285} is Met

~~Xaa_{292} is Glu~~

~~Xaa_{293} is Gln~~

Xaa_{294} is Ile

Xaa_{301} is Phe
Xaa_{306} is Thr
Xaa_{311} is Val
Xaa_{312} is Ala
Xaa_{325} is Arg
Xaa_{328} is Gln
Xaa_{334} is Val
Xaa_{342} is Ile
Xaa_{377} is Thr
Xaa_{381} is Glu
Xaa_{385} is His
Xaa_{387} is Ile
Xaa_{393} is Val
Xaa_{394} is Leu
Xaa_{402} is Arg
Xaa_{404} is Pro
Xaa_{413} is Phe
Xaa_{422} is Gly
Xaa_{428} is Gly
Xaa_{429} is Pro
Xaa_{435} is Gln
Xaa_{447} is Arg
Xaa_{453} is Asn
Xaa_{459} is Met, and
Xaa_{485} is Asp.

Claim 55. (currently amended) The isolated nucleic acid of Claim 1 where

~~Xaa_{10} is Phe or Leu~~
Xaa_{16} is Leu
Xaa_{23} is Thr
Xaa_{25} is Lys
Xaa_{39} is Lys
Xaa_{48} is Leu
Xaa_{60} is Leu

Xaa_{73} is Leu

Xaa_{74} is Tyr

Xaa_{95} is Thr

Xaa_{96} is His

Xaa_{102} is Asn

Xaa_{110} is Ile

Xaa_{112} is Arg

Xaa_{117} is Ser

Xaa_{118} is Ser

Xaa_{121} is Met

Xaa_{122} is Val

Xaa_{124} is Phe

Xaa_{129} is Lys

Xaa_{147} is Lys

Xaa_{159} is Phe

Xaa_{162} is Val

Xaa_{166} is Gly

Xaa_{170} is Gln

Xaa_{175} is Leu

Xaa_{183} is Thr

Xaa_{187} is Ile

Xaa_{191} is Val

Xaa_{209} is Phe

Xaa_{219} is Trp

Xaa_{223} is His

Xaa_{253} is Glu

Xaa_{259} is Lys

Xaa_{263} is Val

Xaa_{264} is Val

Xaa_{268} is Val

Xaa_{272} is Phe

Xaa_{285} is Met

~~Xaa_{292} is Asp~~

~~Xaa_{293} is His~~

Xaa_{294} is Ile

Xaa_{301} is Phe

Xaa_{306} is Thr

Xaa_{311} is Val

Xaa_{312} is Ala

Xaa_{325} is Lys

Xaa_{328} is Glu

Xaa_{334} is Val

Xaa_{342} is Arg

Xaa_{377} is Thr

Xaa_{381} is Glu

Xaa_{385} is Cys

Xaa_{387} is Thr

Xaa_{393} is Ile

Xaa_{394} is Leu

Xaa_{402} is Arg

Xaa_{404} is Pro

Xaa_{413} is Phe

Xaa_{422} is Gly

Xaa_{428} is Arg

Xaa_{429} is Leu

Xaa_{435} is Arg

Xaa_{447} is Arg

Xaa_{453} is Asn

Xaa_{459} is Met, and

Xaa_{485} is Gly.

Claim 56. (currently amended) The isolated nucleic acid of Claim 1 where

Xaa_{10} is Leu

Xaa_{16} is Leu

Xaa_{23} is Thr

Xaa_{25} is Lys

Xaa_{39} is Lys

Xaa_{48} is Leu

Xaa_{60} is Leu

Xaa_{73} is Leu

Xaa_{74} is Tyr

Xaa_{95} is Thr

Xaa_{96} is His

Xaa_{102} is Asn

Xaa_{110} is Ile

Xaa_{112} is Arg

Xaa_{117} is Ser

Xaa_{118} is Ser

Xaa_{121} is Met

Xaa_{122} is Val

Xaa_{124} is Phe

Xaa_{129} is Lys

Xaa_{147} is Lys

Xaa_{159} is Phe

Xaa_{162} is Val

Xaa_{166} is Gly

Xaa_{170} is Gln

Xaa_{175} is Leu

Xaa_{183} is Thr

Xaa_{187} is Ile

Xaa_{191} is Met

Xaa_{209} is Phe

Xaa_{219} is Trp

Xaa_{223} is His

Xaa_{253} is Glu

Xaa_{259} is Lys

Xaa_{263} is Val

Xaa_{264} is Val

Xaa_{268} is Val

Xaa_{272} is Phe

Xaa_{285} is Met

~~Xaa_{292} is Asp~~

~~Xaa_{293} is His~~

Xaa_{294} is Ile

Xaa_{301} is Phe

Xaa_{306} is Thr

Xaa_{311} is Val

Xaa_{312} is Ala

Xaa_{325} is Lys

Xaa_{328} is Glu

Xaa_{334} is Ala

Xaa_{342} is Arg

Xaa_{377} is Thr

Xaa_{381} is Glu

Xaa_{385} is Tyr

Xaa_{387} is Ile

Xaa_{393} is Ile

Xaa_{394} is Leu

Xaa_{402} is Arg

Xaa_{404} is Pro

Xaa_{413} is Phe

Xaa_{422} is Gly

Xaa_{428} is Arg

Xaa_{429} is Pro

Xaa_{435} is Gln

Xaa_{447} is Arg

Xaa_{453} is Asn

Xaa_{459} is Met, and

Xaa_{485} is Gly.

Claim 57. (currently amended) The isolated nucleic acid of Claim 1 where

Xaa_{10} is Leu

Xaa_{16} is Leu

Xaa_{23} is Thr

Xaa_{25} is Lys

Xaa_{39} is Lys

Xaa_{48} is Leu

Xaa_{60} is Leu

Xaa_{73} is Leu

Xaa_{74} is Tyr

Xaa_{95} is Thr

Xaa_{96} is His

Xaa_{102} is Asn

Xaa_{110} is Ile

Xaa_{112} is Arg

Xaa_{117} is Ser

Xaa_{118} is Ser

Xaa_{121} is Met

Xaa_{122} is Val

Xaa_{124} is Phe

Xaa_{129} is Lys

Xaa_{147} is Lys

Xaa_{159} is Phe

Xaa_{162} is Ala

Xaa_{166} is Gly

Xaa_{170} is Gln

Xaa_{175} is Leu

Xaa_{183} is Thr

Xaa_{187} is Ile

Xaa_{191} is Met

Xaa_{209} is Phe

Xaa_{219} is Trp

Xaa_{223} is His

Xaa_{253} is Glu

Xaa_{259} is Lys

Xaa_{263} is Val

Xaa_{264} is Val

Xaa_{268} is Val
Xaa_{272} is Phe
Xaa_{285} is Met
~~Xaa_{292} is Asp~~
~~Xaa_{293} is His~~
Xaa_{294} is Ile
Xaa_{301} is Phe
Xaa_{306} is Thr
Xaa_{311} is Val
Xaa_{312} is Ala
Xaa_{325} is Lys
Xaa_{328} is Glu
Xaa_{334} is Val
Xaa_{342} is Arg
Xaa_{377} is Thr
Xaa_{381} is Glu
Xaa_{385} is Tyr
Xaa_{387} is Ile
Xaa_{393} is Ile
Xaa_{394} is Leu
Xaa_{402} is Arg
Xaa_{404} is Pro
Xaa_{413} is Phe
Xaa_{422} is Gly
Xaa_{428} is Arg
Xaa_{429} is Pro
Xaa_{435} is Gln
Xaa_{447} is Arg
Xaa_{453} is Asn
Xaa_{459} is Met, and
Xaa_{485} is Gly.

Claim 58. (currently amended) The isolated nucleic acid of Claim 1 where

Xaa_{10} is Leu

Xaa_{16} is Leu

Xaa_{23} is Thr

Xaa_{25} is Lys

Xaa_{39} is Lys

Xaa_{48} is Leu

Xaa_{60} is Leu

Xaa_{73} is Leu

Xaa_{74} is Tyr

Xaa_{95} is Thr

Xaa_{96} is His

Xaa_{102} is Asn

Xaa_{110} is Iler

Xaa_{112} is Arg

Xaa_{117} is Ser

Xaa_{118} is Ser

Xaa_{121} is Met

Xaa_{122} is Val

Xaa_{124} is Phe

Xaa_{129} is Lys

Xaa_{147} is Lys

Xaa_{159} is Phe

Xaa_{162} is Val

Xaa_{166} is Gly

Xaa_{170} is Gln

Xaa_{175} is Leu

Xaa_{183} is Thr

Xaa_{187} is Ile

Xaa_{191} is Met

Xaa_{209} is Phe

Xaa_{219} is Trp

Xaa_{223} is His

Xaa_{253} is Glu

Xaa_{259} is Lys

Xaa_{263} is Val
Xaa_{264} is Val
Xaa_{268} is Val
Xaa_{272} is Phe
Xaa_{285} is Thr
~~Xaa_{292} is Asp~~
~~Xaa_{293} is His~~
Xaa_{294} is Ile
Xaa_{301} is Phe
Xaa_{306} is Thr
Xaa_{311} is Val
Xaa_{312} is Ala
Xaa_{325} is Lys
Xaa_{328} is Glu
Xaa_{334} is Val
Xaa_{342} is Arg
Xaa_{377} is Thr
Xaa_{381} is Glu
Xaa_{385} is Tyr
Xaa_{387} is Ile
Xaa_{393} is Ile
Xaa_{394} is Leu
Xaa_{402} is Arg
Xaa_{404} is Pro
Xaa_{413} is Phe
Xaa_{422} is Gly
Xaa_{428} is Arg
Xaa_{429} is Pro
Xaa_{435} is Gln
Xaa_{447} is Arg
Xaa_{453} is Asn
Xaa_{459} is Met, and
Xaa_{485} is Gly.

Claim 59. (currently amended) The isolated nucleic acid of Claim 1 where

Xaa_{10} is Leu
Xaa_{16} is Leu
Xaa_{23} is Thr
Xaa_{25} is Lys
Xaa_{39} is Lys
Xaa_{48} is Leu
Xaa_{60} is Leu
Xaa_{73} is Leu
Xaa_{74} is Tyr
Xaa_{95} is Thr
Xaa_{96} is His
Xaa_{102} is Asn
Xaa_{110} is Ile
Xaa_{112} is Arg
Xaa_{117} is Ser
Xaa_{118} is Ser
Xaa_{121} is Met
Xaa_{122} is Val
Xaa_{124} is Phe
Xaa_{129} is Lys
Xaa_{147} is Lys
Xaa_{159} is Phe
Xaa_{162} is Val
Xaa_{166} is Gly
Xaa_{170} is Gln
Xaa_{175} is Leu
Xaa_{183} is Thr
Xaa_{187} is Ile
Xaa_{191} is Met
Xaa_{209} is Phe
Xaa_{219} is Trp
Xaa_{223} is His

Xaa_{253} is Glu
Xaa_{259} is Lys
Xaa_{263} is Val
Xaa_{264} is Val
Xaa_{268} is Val
Xaa_{272} is Phe
Xaa_{285} is Met
~~Xaa_{292} is Asp~~
~~Xaa_{293} is His~~
Xaa_{294} is Ile
Xaa_{301} is Phe
Xaa_{306} is Thr
Xaa_{311} is Glu
Xaa_{312} is Ala
Xaa_{325} is Lys
Xaa_{328} is Glu
Xaa_{334} is Val
Xaa_{342} is Arg
Xaa_{377} is Thr
Xaa_{381} is Glu
Xaa_{385} is Tyr
Xaa_{387} is Ile
Xaa_{393} is Ile
Xaa_{394} is Leu
Xaa_{402} is Arg
Xaa_{404} is Pro
Xaa_{413} is Phe
Xaa_{422} is Gly
Xaa_{428} is Arg
Xaa_{429} is Pro
Xaa_{435} is Gln
Xaa_{447} is Arg
Xaa_{453} is Asn

Xaa_{459} is Met, and

Xaa_{485} is Gly.

Claim 60. (currently amended) The isolated nucleic acid of Claim 1 where

Xaa_{10} is Leu

Xaa_{16} is Leu

Xaa_{23} is Thr

Xaa_{25} is Lys

Xaa_{39} is Lys

Xaa_{48} is Leu

Xaa_{60} is Leu

Xaa_{73} is Leu

Xaa_{74} is Tyr

Xaa_{95} is Thr

Xaa_{96} is His

Xaa_{102} is Asn

Xaa_{110} is Ile

Xaa_{112} is Arg

Xaa_{117} is Ser

Xaa_{118} is Ser

Xaa_{121} is Met

Xaa_{122} is Val

Xaa_{124} is Ile

Xaa_{129} is Lys

Xaa_{147} is Lys

Xaa_{159} is Phe

Xaa_{162} is Val

Xaa_{166} is Gly

Xaa_{170} is Gln

Xaa_{175} is Leu

Xaa_{183} is Thr

Xaa_{187} is Ile

Xaa_{191} is Met

Xaa_{209} is Phe

Xaa_{219} is Trp
Xaa_{223} is His
Xaa_{253} is Glu
Xaa_{259} is Lys
Xaa_{263} is Val
Xaa_{264} is Asp
Xaa_{268} is Val
Xaa_{272} is Phe
Xaa_{285} is Thr
~~Xaa_{292} is Asp~~
~~Xaa_{293} is His~~
Xaa_{294} is Ile
Xaa_{301} is Phe
Xaa_{306} is Thr
Xaa_{311} is Val
Xaa_{312} is Ala
Xaa_{325} is Lys
Xaa_{328} is Glu
Xaa_{334} is Val
Xaa_{342} is Arg
Xaa_{377} is Thr
Xaa_{381} is Glu
Xaa_{385} is Tyr
Xaa_{387} is Ile
Xaa_{393} is Ile
Xaa_{394} is Leu
Xaa_{402} is Arg
Xaa_{404} is Pro
Xaa_{413} is Phe
Xaa_{422} is Gly
Xaa_{428} is Arg
Xaa_{429} is Pro
Xaa_{435} is Gln

Xaa_{447} is Arg

Xaa_{453} is Asn

Xaa_{459} is Met

Xaa_{485} is Gly.

Claim 61. (currently amended) The isolated nucleic acid of Claim 1 where

Xaa_{10} is Leu

Xaa_{16} is Leu

Xaa_{23} is Thr

Xaa_{25} is Lys

Xaa_{39} is Lys

Xaa_{48} is Leu

Xaa_{60} is Leu

Xaa_{73} is Leu

Xaa_{74} is Tyr

Xaa_{95} is Thr

Xaa_{96} is His

Xaa_{102} is Asn

Xaa_{110} is Ile

Xaa_{112} is Arg

Xaa_{117} is Ser

Xaa_{118} is Ser

Xaa_{121} is Met

Xaa_{122} is Val

Xaa_{124} is Phe

Xaa_{129} is Lys

Xaa_{147} is Lys

Xaa_{159} is Phe

Xaa_{162} is Val

Xaa_{166} is Gly

Xaa_{170} is Gln

Xaa_{175} is Leu

Xaa_{183} is Thr

Xaa_{187} is Ile

Xaa_{191} is Met

Xaa_{209} is Phe

Xaa_{219} is Trp

Xaa_{223} is His

Xaa_{253} is Glu

Xaa_{259} is Lys

Xaa_{263} is Val

Xaa_{264} is Val

Xaa_{268} is Val

Xaa_{272} is Phe

Xaa_{285} is Thr

~~Xaa_{292} is Asp~~

~~Xaa_{293} is His~~

Xaa_{294} is Ile

Xaa_{301} is Phe

Xaa_{306} is Thr

Xaa_{311} is Val

Xaa_{312} is Ala

Xaa_{325} is Lys

Xaa_{328} is Glu

Xaa_{334} is Val

Xaa_{342} is Arg

Xaa_{377} is Thr

Xaa_{381} is Glu

Xaa_{385} is Tyr

Xaa_{387} is Ile

Xaa_{393} is Ile

Xaa_{394} is Leu

Xaa_{402} is Arg

Xaa_{404} is Pro

Xaa_{413} is Phe

Xaa_{422} is Gly

Xaa_{428} is Arg

Xaa_{429} is Pro

Xaa_{435} is Gln

Xaa_{447} is Arg

Xaa_{453} is Asn

Xaa_{459} is Met, and

Xaa_{485} is Gly.

Claim 62. (currently amended) The isolated nucleic acid of Claim 1 where

Xaa_{10} is Phe

Xaa_{16} is Leu

Xaa_{23} is Ser

Xaa_{25} is Lys

Xaa_{39} is Lys

Xaa_{48} is Leu

Xaa_{60} is Leu

Xaa_{73} is Leu

Xaa_{74} is Ser

Xaa_{95} is Ala

Xaa_{96} is His

Xaa_{102} is Ser

Xaa_{110} is Val

Xaa_{112} is Arg

Xaa_{117} is Asn

Xaa_{118} is Ser

Xaa_{121} is Met

Xaa_{122} is Val

Xaa_{124} is Phe

Xaa_{129} is Lys

Xaa_{147} is Glu

Xaa_{159} is Phe

Xaa_{162} is Val

Xaa_{166} is Ser

Xaa_{170} is Gln

Xaa_{175} is Val

Xaa_{183} is Thr

Xaa_{187} is Ile

Xaa_{191} is Met

Xaa_{209} is Phe

Xaa_{219} is Trp

Xaa_{223} is Tyr

Xaa_{253} is Glu

Xaa_{259} is Lys

Xaa_{263} is Val

Xaa_{264} is Val

Xaa_{268} is Ala

Xaa_{272} is Phe

Xaa_{285} is Met

~~Xaa_{292} is Glu~~

~~Xaa_{293} is Gln~~

Xaa_{294} is Ile

Xaa_{301} is Phe

Xaa_{306} is Thr

Xaa_{311} is Val

Xaa_{312} is Ala

Xaa_{325} is Arg

Xaa_{328} is Gln

Xaa_{334} is Val

Xaa_{342} is Arg

Xaa_{377} is Thr

Xaa_{381} is Glu

Xaa_{385} is Tyr

Xaa_{387} is Ile

Xaa_{393} is Val

Xaa_{394} is Leu

Xaa_{402} is Lys

Xaa_{404} is Pro

Xaa_{413} is Phe

Xaa_{422} is Gly

Xaa_{428} is Gly

Xaa_{429} is Pro

Xaa_{435} is Gln

Xaa_{447} is Arg

Xaa_{453} is Asn

Xaa_{459} is Met, and

Xaa_{485} is Asp.

Claim 63. (currently amended) The isolated nucleic acid of Claim 1 where

~~Xaa_{10} is Phe or Leu~~

Xaa_{16} is Ser

Xaa_{23} is Ser

Xaa_{25} is Ile

Xaa_{39} is Arg

Xaa_{48} is Leu

Xaa_{60} is Pro

Xaa_{73} is Leu

Xaa_{74} is Ser

Xaa_{95} is Thr

Xaa_{96} is His

Xaa_{102} is Asn

Xaa_{110} is Ile

Xaa_{112} is His

Xaa_{117} is Asn

Xaa_{118} is Ser

Xaa_{121} is Met

Xaa_{122} is Val

Xaa_{124} is Phe

Xaa_{129} is Lys

Xaa_{147} is Lys

Xaa_{159} is Phe

Xaa_{162} is Val

Xaa_{166} is Ser

Xaa_{170} is Gln
Xaa_{175} is Val
Xaa_{183} is Thr
Xaa_{187} is Ile
Xaa_{191} is Met
Xaa_{209} is Phe
Xaa_{219} is Trp
Xaa_{223} is Tyr
Xaa_{253} is Glu
Xaa_{259} is Lys
Xaa_{263} is Val
Xaa_{264} is Val
Xaa_{268} is Ala
Xaa_{272} is Phe
Xaa_{285} is Met
~~Xaa_{292} is Glu~~
~~Xaa_{293} is Gln~~
Xaa_{294} is Ile
Xaa_{301} is Phe
Xaa_{306} is Thr
Xaa_{311} is Val
Xaa_{312} is Val
Xaa_{325} is Arg
Xaa_{328} is Gln
Xaa_{334} is Val
Xaa_{342} is Arg
Xaa_{377} is Thr
Xaa_{381} is Glu
Xaa_{385} is Tyr
Xaa_{387} is Ile
Xaa_{393} is Val
Xaa_{394} is Leu
Xaa_{402} is Arg

Xaa_{404} is Pro

Xaa_{413} is Ser

Xaa_{422} is Gly

Xaa_{428} is Gly

Xaa_{429} is Pro

Xaa_{435} is Gln

Xaa_{447} is Arg

Xaa_{453} is Ser

Xaa_{459} is Met, and

Xaa_{485} is Asp.

Claim 64. (currently amended) The isolated nucleic acid of Claim 1 where

~~Xaa_{10} is Phe or Leu~~

Xaa_{16} is Leu

Xaa_{23} is Thr

Xaa_{25} is Lys

Xaa_{39} is Lys

Xaa_{48} is Leu

Xaa_{60} is Leu

Xaa_{73} is Leu

Xaa_{74} is Tyr

Xaa_{95} is Thr

Xaa_{96} is His

Xaa_{102} is Asn

Xaa_{110} is Ile

Xaa_{112} is Arg

Xaa_{117} is Ser

Xaa_{118} is Ser

Xaa_{121} is Met

Xaa_{122} is Val

Xaa_{124} is Phe

Xaa_{129} is Lys

Xaa_{147} is Lys

Xaa_{159} is Phe

Xaa_{162} is Val
Xaa_{166} is Ser
Xaa_{170} is Gln
Xaa_{175} is Val
Xaa_{183} is Thr
Xaa_{187} is Ile
Xaa_{191} is Met
Xaa_{209} is Phe
Xaa_{219} is Trp
Xaa_{223} is Tyr
Xaa_{253} is Glu
Xaa_{259} is Lys
Xaa_{263} is Val
Xaa_{264} is Val
Xaa_{268} is Ala
Xaa_{272} is Phe
Xaa_{285} is Met
~~Xaa_{292} is Glu~~
~~Xaa_{293} is Gln~~
Xaa_{294} is Ile
Xaa_{301} is Phe
Xaa_{306} is Thr
Xaa_{311} is Val
Xaa_{312} is Val
Xaa_{325} is Lys
Xaa_{328} is Gln
Xaa_{334} is Ala
Xaa_{342} is Arg
Xaa_{377} is Thr
Xaa_{381} is Gly
Xaa_{385} is Tyr
Xaa_{387} is Ile
Xaa_{393} is Val

Xaa_{394} is Leu

Xaa_{402} is Arg

Xaa_{404} is Pro

Xaa_{413} is Phe

Xaa_{422} is Gly

Xaa_{428} is Gly

Xaa_{429} is Pro

Xaa_{435} is Gln

Xaa_{447} is Arg

Xaa_{453} is Asn

Xaa_{459} is Met, and

Xaa_{485} is Asp.

Claim 65. (currently amended) The isolated nucleic acid of Claim 1 where

~~Xaa_{10} is Phe or Leu~~

Xaa_{16} is Leu

Xaa_{23} is Thr

Xaa_{25} is Lys

Xaa_{39} is Lys

Xaa_{48} is Leu

Xaa_{60} is Leu

Xaa_{73} is Leu

Xaa_{74} is Tyr

Xaa_{95} is Thr

Xaa_{96} is His

Xaa_{102} is Asn

Xaa_{110} is Ile

Xaa_{112} is Arg

Xaa_{117} is Ser

Xaa_{118} is Ser

Xaa_{121} is Met

Xaa_{122} is Val

Xaa_{124} is Phe

Xaa_{129} is Lys

Xaa_{147} is Lys
Xaa_{159} is Phe
Xaa_{162} is Val
Xaa_{166} is Gly
Xaa_{170} is Gln
Xaa_{175} is Leu
Xaa_{183} is Thr
Xaa_{187} is Ile
Xaa_{191} is Met
Xaa_{209} is Phe
Xaa_{219} is Trp
Xaa_{223} is His
Xaa_{253} is Glu
Xaa_{259} is Lys
Xaa_{263} is Asp
Xaa_{264} is Val
Xaa_{268} is Val
Xaa_{272} is Phe
Xaa_{285} is Met
~~Xaa_{292} is Asp~~
~~Xaa_{293} is His~~
Xaa_{294} is Ile
Xaa_{301} is Phe
Xaa_{306} is Thr
Xaa_{311} is Val
Xaa_{312} is Ala
Xaa_{325} is Lys
Xaa_{328} is Glu
Xaa_{334} is Val
Xaa_{342} is Arg
Xaa_{377} is Ile
Xaa_{381} is Glu
Xaa_{385} is Tyr

Xaa_{387} is Ile

Xaa_{393} is Ile

Xaa_{394} is Leu

Xaa_{402} is Arg

Xaa_{404} is Pro

Xaa_{413} is Phe

Xaa_{422} is Gly

Xaa_{428} is Arg

Xaa_{429} is Leu

Xaa_{435} is Gln

Xaa_{447} is Arg

Xaa_{453} is Asn

Xaa_{459} is Met, and

Xaa_{485} is Gly.

Claim 66. (currently amended) The isolated nucleic acid of claim 1 where

Xaa_{10} is Phe or Leu

Xaa_{16} is Leu

Xaa_{23} is Thr

Xaa_{25} is Lys

Xaa_{39} is Lys

Xaa_{48} is Leu

Xaa_{60} is Leu

Xaa_{73} is Leu

Xaa_{74} is Tyr

Xaa_{95} is Thr

Xaa_{96} is His

Xaa_{102} is Asn

Xaa_{110} is Ile

Xaa_{112} is Arg

Xaa_{117} is Ser

Xaa_{118} is Ser

Xaa_{121} is Arg

Xaa_{122} is Val

Xaa_{124} is Phe

Xaa_{129} is Lys

Xaa_{147} is Lys

Xaa_{159} is Phe

Xaa_{162} is Val

Xaa_{166} is Gly

Xaa_{170} is Gln

Xaa_{175} is Leu

Xaa_{183} is Thr

Xaa_{187} is Ile

Xaa_{191} is Metl

Xaa_{209} is Phe

Xaa_{219} is Trp

Xaa_{223} is His

Xaa_{253} is Glu

Xaa_{259} is Lys

Xaa_{263} is Val

Xaa_{264} is Val

Xaa_{268} is Val

Xaa_{272} is Leu

Xaa_{285} is Met

~~Xaa_{292} is Asp~~

~~Xaa_{293} is His~~

Xaa_{294} is Ile

Xaa_{301} is Phe

Xaa_{306} is Thr

Xaa_{311} is Val

Xaa_{312} is Ala

Xaa_{325} is Lys

Xaa_{328} is Glu

Xaa_{334} is Val

Xaa_{342} is Arg

Xaa_{377} is Thr

Xaa_{381} is Glu

Xaa_{385} is Tyr

Xaa_{387} is Ile

Xaa_{393} is Ile

Xaa_{394} is Leu

Xaa_{402} is Arg

Xaa_{404} is Pro

Xaa_{413} is Phe

Xaa_{422} is Glu

Xaa_{428} is Arg

Xaa_{429} is Pro

Xaa_{435} is Gln

Xaa_{447} is Arg

Xaa_{453} is Ile

Xaa_{459} is Met, and

Xaa_{485} is Gly.

Claim 67. (currently amended) The isolated nucleic acid of Claim 1 where

~~Xaa_{10} is Phe or Leu~~

Xaa_{16} is Leu

Xaa_{23} is Thr

Xaa_{25} is Lys

Xaa_{39} is Lys

Xaa_{48} is Leu

Xaa_{60} is Leu

Xaa_{73} is Leu

Xaa_{74} is Tyr

Xaa_{95} is Thr

Xaa_{96} is His

Xaa_{102} is Asn

Xaa_{110} is Ile

Xaa_{112} is Arg

Xaa_{117} is Ser

Xaa_{118} is Ser

Xaa_{121} is Met
Xaa_{122} is Ala
Xaa_{124} is Phe
Xaa_{129} is Lys
Xaa_{147} is Lys
Xaa_{159} is Phe
Xaa_{162} is Val
Xaa_{166} is Gly
Xaa_{170} is Gln
Xaa_{175} is Leu
Xaa_{183} is Thr
Xaa_{187} is Thr
Xaa_{191} is Met
Xaa_{209} is Phe
Xaa_{219} is Arg
Xaa_{223} is His
Xaa_{253} is Glu
Xaa_{259} is Lys
Xaa_{263} is Val
Xaa_{264} is Val
Xaa_{268} is Val
Xaa_{272} is Phe
Xaa_{285} is Thr
~~Xaa_{292} is Asp~~
~~Xaa_{293} is His~~
Xaa_{294} is Ile
Xaa_{301} is Phe
Xaa_{306} is Thr
Xaa_{311} is Val
Xaa_{312} is Ala
Xaa_{325} is Lys
Xaa_{328} is Glu
Xaa_{334} is Val

Xaa_{342} is Arg
Xaa_{377} is Thr
Xaa_{381} is Glu
Xaa_{385} is Tyr
Xaa_{387} is Ile
Xaa_{393} is Ile
Xaa_{394} is Leu
Xaa_{402} is Arg
Xaa_{404} is Ser
Xaa_{413} is Phe
Xaa_{422} is Gly
Xaa_{428} is Arg
Xaa_{429} is Pro
Xaa_{435} is Gln
Xaa_{447} is Arg
Xaa_{453} is Asn
Xaa_{459} is Met, and
Xaa_{485} is Gly.

Claim 68. (currently amended) The isolated nucleic acid of Claim 1 where

~~Xaa_{10} is Phe or Leu~~
Xaa_{16} is Leu
Xaa_{23} is Thr
Xaa_{25} is Lys
Xaa_{39} is Lys
Xaa_{48} is Leu
Xaa_{60} is Leu
Xaa_{73} is Leu
Xaa_{74} is Tyr
Xaa_{95} is Thr
Xaa_{96} is His
Xaa_{102} is Asn
Xaa_{110} is Ile
Xaa_{112} is Arg

Xaa_{117} is Ser
Xaa_{118} is Ser
Xaa_{121} is Met
Xaa_{122} is Val
Xaa_{124} is Phe
Xaa_{129} is Lys
Xaa_{147} is Lys
Xaa_{159} is Leu
Xaa_{162} is Val
Xaa_{166} is Gly
Xaa_{170} is Gln
Xaa_{175} is Leu
Xaa_{183} is Thr
Xaa_{187} is Ile
Xaa_{191} is Met
Xaa_{209} is Phe
Xaa_{219} is Trp
Xaa_{223} is His
Xaa_{253} is Glu
Xaa_{259} is Lys
Xaa_{263} is Val
Xaa_{264} is Ile
Xaa_{268} is Val
Xaa_{272} is Phe
Xaa_{285} is Thr
~~Xaa_{292} is Asp~~
~~Xaa_{293} is His~~
Xaa_{294} is Ile
Xaa_{301} is Phe
Xaa_{306} is Thr
Xaa_{311} is Val
Xaa_{312} is Ala
Xaa_{325} is Lys

Xaa_{328} is Glu
Xaa_{334} is Val
Xaa_{342} is Arg
Xaa_{377} is Thr
Xaa_{381} is Glu
Xaa_{385} is Tyr
Xaa_{387} is Ile
Xaa_{393} is Ile
Xaa_{394} is Leu
Xaa_{402} is Arg
Xaa_{404} is Pro
Xaa_{413} is Phe
Xaa_{422} is Gly
Xaa_{428} is Arg
Xaa_{429} is Pro
Xaa_{435} is Gln
Xaa_{447} is Arg
Xaa_{453} is Asn
Xaa_{459} is Met, and
Xaa_{485} is Gly.

Claim 69. (currently amended) The isolated nucleic acid of Claim 1 where

Xaa_{16} is Leu
Xaa_{23} is Thr
Xaa_{25} is Lys
Xaa_{39} is Lys
Xaa_{48} is Leu
Xaa_{60} is Leu
Xaa_{73} is His
Xaa_{74} is Tyr
Xaa_{95} is Thr
Xaa_{96} is Asn
Xaa_{102} is Asn
Xaa_{110} is Ile

Xaa_{112} is Arg
Xaa_{117} is Ser
Xaa_{118} is Ser
Xaa_{121} is Met
Xaa_{122} is Val
Xaa_{124} is Phe
Xaa_{129} is Lys
Xaa_{147} is Lys
Xaa_{159} is Phe
Xaa_{162} is Ala
Xaa_{166} is Gly
Xaa_{170} is Arg
Xaa_{175} is Leu
Xaa_{183} is Ala
Xaa_{187} is Ile
Xaa_{191} is Met
Xaa_{209} is Phe
Xaa_{219} is Trp
Xaa_{223} is His
Xaa_{253} is Glu
Xaa_{259} is Lys
Xaa_{263} is Val
Xaa_{264} is Val
Xaa_{268} is Val
Xaa_{272} is Phe
Xaa_{285} is Met
~~Xaa_{292} is Asp~~
~~Xaa_{293} is His~~
Xaa_{294} is Thr
Xaa_{301} is Phe
Xaa_{306} is Thr
Xaa_{311} is Val
Xaa_{312} is Ala

Xaa_{325} is Lys

Xaa_{328} is Glu

Xaa_{334} is Val

Xaa_{342} is Arg

Xaa_{377} is Thr

Xaa_{381} is Glu

Xaa_{385} is Tyr

Xaa_{387} is Ile

Xaa_{393} is Ile

Xaa_{394} is Pro

Xaa_{402} is Arg

Xaa_{404} is Pro

Xaa_{413} is Phe

Xaa_{422} is Gly

Xaa_{428} is Arg

Xaa_{429} is Pro

Xaa_{435} is Gln

Xaa_{447} is Arg

Xaa_{453} is Asn

Xaa_{459} is Thr, and

Xaa_{485} is Gly.

Claim 70. –72. (not entered)

Amendments to the Sequence Listing

The attached Sequence Listing amends the errors introduced in the Sequence Listing filed with the response dated February 5, 2005. The present Sequence Listing includes the following corrections: the Ile amino acid at position 294 of SEQ ID NO:66 has been replaced with Xaa and defined under Misc_Feature in the <223> identifier as Xaa=Thr or Ile. In addition, Xaa at position 295 in SEQ ID NO:66 has been replaced with Lys. Support for the changes to the Sequence Listing are presented in the Remarks, set forth below, and are herein incorporated by reference.

This Sequence Listing will replace all prior versions, and Sequence Listings, in the Application:

Attachment: Replacement Sequence Listing